

Conclusions:

3.2 Using Parallel Lines and Transversals

Postulate 15 Corresponding Angles Postulate

If two parallel lines are cut by a transversal, then each pair of corresponding angles is congruent.

Theorem 3.1 Alternate Interior Angles Theorem

If two parallel lines are cut by a transversal, then each pair of alternate interior angles is congruent.

Theorem 3.2 Alternate Exterior Angles Theorem

If two parallel lines are cut by a transversal, then each pair of alternate exterior angles is congruent.

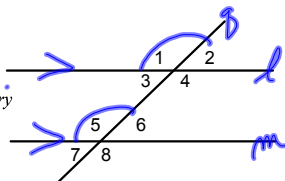
Theorem 3.3 Consecutive Interior Angles Theorem

If two parallel lines are cut by a transversal, then each pair of same-side (consecutive) interior angles is supplementary.

Let's prove Theorem 3.3

Given: $l \parallel m$

Prove: $\angle 3$ and $\angle 5$ are supplementary



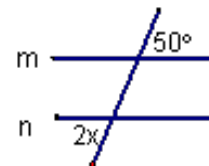
- | | |
|--------------------------------------|--------------------------|
| ① $l \parallel m$ | ① Given |
| ② $\angle 1$ & $\angle 3$ are a L.P. | ② def of L.P. |
| ③ $\angle 1$ & $\angle 5$ are suppl. | ③ L.P.P. |
| ④ $\angle 1 \cong \angle 5$ | ④ Corr. \angle s Post. |
| ⑤ $m\angle 1 + m\angle 3 = 180$ | ⑤ def of suppl. |
| ⑥ $m\angle 1 = m\angle 5$ | ⑥ def of \cong |
| ⑦ $m\angle 5 + m\angle 3 = 180$ | ⑦ Subst. |
| ⑧ $\angle 3$ & $\angle 5$ are suppl. | ⑧ def of suppl. |

Solve for x and/or y.

$$m \parallel n$$

$$2x = 50$$

$$x = 25$$

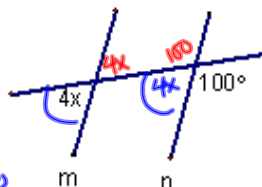


Solve for x and/or y.

$$m \parallel n$$

$$4x + 100 = 180$$

$$x = 20$$

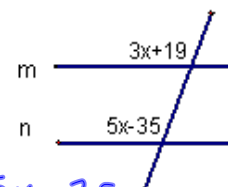


Solve for x and/or y.

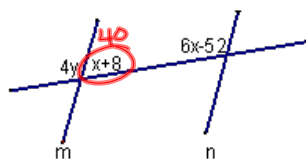
$$m \parallel n$$

$$3x + 19 = 5x - 35$$

$$x = 27$$



Solve for x and/or y.

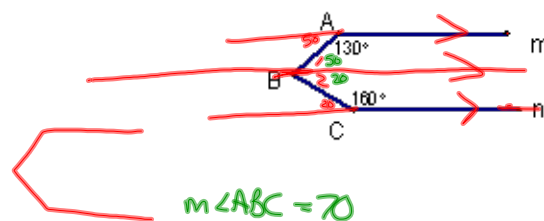
 $m \parallel n$ 

$$x + 8 + 6x - 52 = 180$$

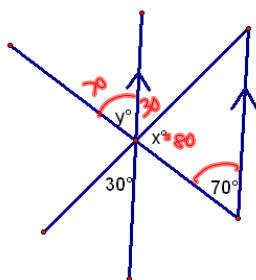
$$x = 32$$

$$4y = 140$$

$$y = 35$$

Find the $m\angle ABC$ $m \parallel n$ 

Solve for x and/or y.



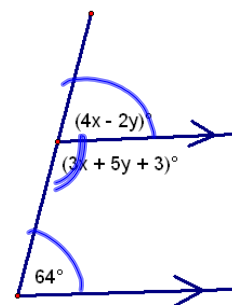
Solve for x and/or y.

$$4x - 2y = 64$$

$$3x + 5y + 3 + 64 = 180$$

$$x = 21$$

$$y = 10$$



HW

p.158 #s 27-32, 35, 36,37

,37